

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 03-054824

(43)Date of publication of application : 08.03.1991

(51)Int.Cl.

H01L 21/302

(21)Application number : 01-191701

(71)Applicant : NEC CORP

(22)Date of filing : 24.07.1989

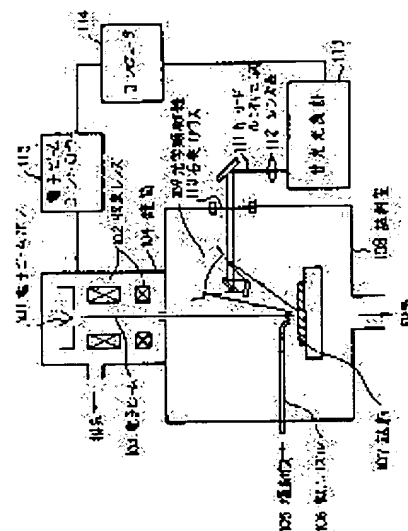
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(54) SEMICONDUCTOR PROCESSING AND SEMICONDUCTOR PROCESSING DEVICE

(57)Abstract:

PURPOSE: To enable the etching level to be controlled with high precision by a method wherein the processing and electron beams are controlled on the basis of the cathode luminescence spectrum emitted by focused electron beam irradiation.

CONSTITUTION: A specimen 107 is processed by irradiating it with focused electron beams 103 using chlorine gas as a reaction gas. The cathode luminescence 111 emitted from the specimen 107 enters a spectrophotometer 113 through an optical microscope 109, a quartz glass window 110 in a specimen chamber 108 and via a lens system 112. The luminescence spectrum obtained by the spectrophotometer 113 is analyzed by a computer 114 to control an electron beam controller 115 on the basis of the analysis data. Through these procedures, the elements comprising respective layers of specimen 7 can be detected by the characteristics lines of the luminescence spectrum so that the etching level may be controlled with high precision by detecting the local composition and the damage degree of the processed part.



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[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]